

**Testimony of Jerry Paul, Principal Deputy Administrator,  
National Nuclear Security Administration  
to the  
House Committee on Homeland Security  
Subcommittee on Prevention of Nuclear and Biological Attack**

**June 22, 2006**

Mr. Chairman, thank you for focusing on the nonproliferation activities of the U.S. Department of Energy's National Nuclear Security Administration (NNSA) and providing this opportunity to testify. In particular, I appreciate the opportunity to highlight our activities to date under the U.S.-Russian Senior Interagency Working Group on Nuclear Security Cooperation established by Presidents Bush and Putin at Bratislava in February of 2005 and related accomplishments.

I will begin by briefly outlining NNSA's overall strategy to place into context our work under the Senior Working Group, commonly referred to as "The Bratislava Initiative."

In the aftermath of 9/11, we have intensified our efforts to keep nuclear material and nuclear weapons out of the hands of terrorists. The NNSA has accelerated and expanded its implementation of a five-pronged strategy to deny terrorists and states of concern the materials, technology, and expertise needed to develop nuclear weapons.

First: To account for and secure nuclear material in Russia and the former Soviet Union.

- To date, we have secured over 80 percent of the sites where these materials are stored and we are on course to finish all of our security upgrades by 2008 – a full two years ahead of the schedule established prior to 2001.
- With over 95 percent of the warhead and nuclear fuels sites completed, we will finish our work to secure Russian Navy warhead and nuclear fuel sites in FY 2006. We are moving rapidly to secure all remaining 12<sup>th</sup> Main Directorate and Strategic Rocket Forces warhead sites on an accelerated schedule, by the end of 2008.

Second: To detect and prevent the movement or trafficking of weapons-usable technologies and useable nuclear materials.

- Through our Second Line of Defense and Core and Megaports programs, we are working with other countries to install radiation detection equipment at key transit

choke points throughout the world - such as sea ports, airports, and land border crossings -- to improve our ability to detect movement of nuclear and radiological materials.

- Coordinated cooperation with the Department of Homeland Security and the State Department is vital to the successful implementation of this global program. Our staffs work together on a regular basis to streamline communication, eliminate overlaps in responsibility, and identify potential security gaps where added attention is necessary.
- We have installed radiation detection equipment at more than 80 border crossings (rail crossings, vehicle crossings, small seaports) and we have taken responsibility for additional radiation detection equipment at approximately 50 locations originally equipped by the State Department and other agencies. We have already equipped six Megaports – Algeciras, Bahamas, Colombo, Rotterdam, Singapore (pilot) and Piraeus. We expect to complete installations at one more Megaport this year, and are installing equipment at ten additional ports. We plan to sign new agreements at five additional Megaports this fiscal year.
- We are also training front-line enforcement officers worldwide, to interdict illicit technology transfers, and we are helping states strengthen nuclear safeguards needed to secure nuclear materials. It is critical that states take on responsibilities for meeting global nonproliferation responsibilities. These programs help realize that objective.

Third: To stop the production of new fissile material in Russia.

- In 1997, the U.S. signed an agreement with the Russian Federation providing for the cessation of production of weapons-grade plutonium that could be used in nuclear weapons, expediting the shut down of Russia's last three plutonium-producing nuclear reactors. In March 2003, the two governments signed an amendment to the agreement under which the USG would assist in providing fossil fuel plants to supply alternative energy sources thereby allowing Russia to shut down the reactors and cease production of new plutonium.
- We are making progress in this area. We began construction work at the first site, Seversk, last year and started construction at the other site, Zheleznogorsk, earlier this year, with expected completion dates of 2008 and 2011 respectively.

Fourth: To eliminate existing weapons-usable material.

- More than 270 metric tons of Russian Highly Enriched Uranium (the equivalent of about 11,000 warheads) from dismantled weapons have been down-blended to low-enriched, non-weapons grade material for use in commercial power reactors pursuant to the HEU Agreement or what is often called the “Megatons to Megawatts” program. Altogether, 500 metric tons of Russia’s HEU will be

converted and used to support civilian nuclear power here in the United States at little or no cost to the American taxpayer. This down-blended material accounts for 10 percent of U.S. electricity production. In other words, in effect one in every ten light bulbs in America is powered by material that was once contained in a Soviet nuclear warhead.

- Additionally, we are working with the Russians to eliminate 34 metric tons of weapons-grade plutonium in each country, enough for 17,000 nuclear weapons, through our plutonium disposition programs.

Fifth: To eliminate or consolidate the remaining weapons-useable nuclear and radiological materials that exists throughout the remainder of the world.

- In May 2004, DOE launched the Global Threat Reduction Initiative – “GTRI” – to identify, secure, recover and facilitate the disposition of vulnerable nuclear and radiological materials around the world.
- Under the GTRI program, we are converting research reactors around the world from highly enriched uranium (HEU) fuel to low enriched uranium (LEU) fuel.
- We are working with the Russian Federation to develop technologies that will enable the conversion from HEU to LEU fuel of Russian-designed research and test reactors in third countries.
- We signed an agreement with Russia that provides the overall legal framework for repatriating Russian HEU nuclear fuel from Russian-supplied research reactors located around the world for safe storage and disposition. To date, we have completed 12 shipments of HEU fresh and spent nuclear fuel under this program.
- Last fall, we took the actions necessary to extend the period during which spent nuclear fuel containing HEU of U.S. origin could be repatriated to the United States and continue to accept shipments from around the world.
- GTRI reduces the risk of radiological materials being used in a radiological dispersal device by working cooperatively with foreign counterparts to locate, recover, consolidate, and enhance the security of high-risk radioactive materials. To date, the program has completed security upgrades in more than 40 countries containing radiological sources of concern.

We are also securing weapons expertise through joint collaboration and alternate infrastructure development. Through the Department’s Global Initiatives for Proliferation Prevention (“GIPP”) program we are engaging former weapons experts in nuclear, chemical and biological weapons institutes in Russia and the Former Soviet Union (FSU). We often say that the proliferation threat has three elements including technology, materials, and expertise. This program addresses the third element. By redirecting weapons scientists to peaceful, commercially viable activities, we reduce the

likelihood that these individuals will want to work with proliferators and reduce the likelihood that a terrorist organization will be able to recruit them.

Underpinning these policy initiatives, we maintain a vigorous Nonproliferation Research and Development (R&D) Program conducting applied research, development, testing, and evaluation to produce technologies that lead to detection systems strengthening the U.S. response to current and projected threats to national security worldwide posed by the proliferation of weapons of mass destruction and the diversion of special nuclear material. The R&D program is the technical base that provides our policy programs and operational agencies (including the Department of Defense, the Department of Homeland Security, and the Intelligence Community) with innovative systems and technologies to meet the U.S. government's nonproliferation, counter-proliferation, and counter-terrorism mission responsibilities. NNSA invests in strategic and often high-risk technical solutions to detect the proliferation of WMD.

Building on the above outline of our strategy and priorities, I now focus on the Senior Interagency Working Group and its progress to date.

As you know, this working group came out of the February 2005 summit in Bratislava between President Bush and President Putin. Together they issued a joint statement outlining efforts to enhance our nuclear security cooperation. They established a bilateral Senior Interagency Working Group co-chaired by Secretary Bodman of the Department of Energy and by Director Kiriyenko of the Russian Federal Atomic Energy Agency, or Rosatom, as it is more commonly known.

Our expanded nuclear security cooperation has five distinct areas:

- 1.) Emergency Response Cooperation
- 2.) Exchanging "Best Practices"
- 3.) Focus on "Security Culture"
- 4.) Collaboration on issues related to Research Reactors
- 5.) Nuclear Security Cooperation (MPC&A efforts)

Before I go into more detail on each of these areas of cooperation and what has been accomplished to date, I want to describe a little of the history behind the joint statement made in Bratislava, Slovak Republic.

Some of the areas of cooperation that we talk about as "efforts under Bratislava" you will recognize as work we have been conducting with our Russian partners for several years. This includes our research reactor conversion program, our spent and fresh fuel repatriation program, and our nuclear security cooperation, all of which I noted earlier in my remarks as part of our ongoing strategy. We have also been collaborating with Russia for over five years to improve their emergency management infrastructure. So why announce a need to further enhance cooperation?

Because it was important to raise our collaboration to the highest levels of government in order to accelerate our efforts across a spectrum of activities in a well coordinated

fashion. The President has stated that the gravest threat to the United States is the possibility of terrorists acquiring weapons of mass destruction, including nuclear weapons. At Bratislava, Presidents Bush and Putin committed to working to enhance cooperation to counter this threat by building upon our earlier work and to expand, accelerate, and deepen this cooperation.

The NNSA works directly with many agencies within the Russian Federation, most notably Rosatom, but also the Ministry of Defense, Rostekhnadzor (which is analogous to our Nuclear Regulatory Commission), the Ministry of Transportation, the Ministry of Foreign Affairs and other organizations. For the most part, we can accomplish much at the program staff level. In order to expedite cooperation in some areas, however, we must engage the most senior levels of government. Bratislava has given our programs more momentum, more visibility, and has enabled us to accelerate our programs in a way that allows us to work more quickly to solve some of these nuclear security problems.

Additionally, we elevated the dialogue to a national level because we felt that would encourage Russian decision-makers to devote more of their own resources to nuclear security. As a result of our joint commitment to accelerate and expand cooperation, our material protection control and accounting upgrades in Russia are now scheduled to be complete by 2008. However, we cannot walk away and expect those systems will be maintained without financial support from the government of Russia. It is important that the Russian government - that is the President, the Presidential Administration and the Duma – appreciate the gravity of nuclear security issues and be willing to commit resources to those issues as a top priority.

Finally, we all need to recognize that today's Russia is not the same Russia we encountered in the early days of the Nunn-Lugar initiatives. This is a new Russia with a stronger economy, stronger leadership, and a desire to play a larger role on the world stage. We recognize these changes and interact with Russia as a partner - a partner in the war against terrorism, a partner in nonproliferation and a partner in nuclear security.

Our national security demands that we continue our engagement with Russia in the area of nuclear security and that we continue to support programs to eliminate excess fissile material, convert research reactors to LEU fuel, and assist in the security of nuclear material, even as we also acknowledge Russia's need to sustain its own security after we leave. Bratislava provides the opportunity to maintain our long-standing partnership with Russia at the same time that it provides a vehicle for encouraging Russian self-sustainability.

#### *Emergency Response*

The emergency response component of the Bratislava Initiative envisioned cooperation in enhancing emergency-response capability to deal with a nuclear or radiological incident, including training and development of additional technical methods to detect nuclear and radioactive materials involved in the incident. To address this, a U.S. – Russian expert

working group on emergency response was established to review current and future activities in the areas of incident response and consequence management.

Under the Emergency Response Initiative, U.S. experts visited a Russian training and emergency management center in St. Petersburg. On October 18-19, 2005, Russian specialists observed a U.S. tabletop exercise in Nevada. These experts discussed approaches to responding to incidents such as the detonation of a radiological dispersion device, and cooperation on nuclear emergency response.

Plans for next year include further discussions on nuclear incident response and consequence management methodologies, plans, and preparations for such incidents. The group plans to move on from the tabletop exercise to a field exercise in Russia with U.S. experts in late 2006. The scenario will focus on search and consequence management for a terrorist radiological event.

Russia also seeks U.S. participation in training and research activities involving both the Rosatom Emergency Response Center in St. Petersburg, and the Ministry of Defense's Emergency Response Center. The first phase of this work will be completed next year.

This initiative is truly an important partnership in the global war on terror. In addition to preventing and responding to nuclear and radiological incidents, both our nations need to be prepared to mitigate the consequences of any such event.

It is important to note, in addition to work under the Bratislava Initiative, we have also made progress with Russia to develop technical methods to detect nuclear and radiological materials under the Warhead Safety and Security Exchange Agreement (WSSX). WSSX provides for unclassified technical exchanges in safety and security of nuclear warheads, technologies for potential future nonproliferation and arms control initiatives and technologies to combat nuclear related terrorism. Several underlying detection technologies can be applied for both nonproliferation and counter-terrorism objectives. The collaborative projects under WSSX can leverage the work in nuclear weapons detection (including nuclear materials and high explosives) to support advanced technology development to combat nuclear-related terrorism.

### *Best Practices*

In the Bratislava Joint Statement and corresponding "check list," the Interagency Working Group was charged with sharing "best practices" for the sake of improving nuclear security at facilities and to jointly initiate security "best practices" consultations with other countries.

The idea behind this task was to have high-level nuclear security practitioners from both countries work together on common problems, and to discuss solutions and methodologies for addressing those problems. Prior to Bratislava, the majority of our bilateral nuclear work had taken place at the site level with local security managers. For this effort, we enlisted the help of those in our organization outside our Russian

cooperative programs: those actually tasked with providing and overseeing nuclear security at our facilities across the United States. In May of last year, several high-ranking Russian officials came and observed the annual meeting of the U.S. Senior Security Managers of Hazardous Facilities.

Additionally, a number of meetings were held at a high-level nuclear workshop that took place September 14-15, 2005, in Moscow. There were some 80 participants from both countries. From Russia, the participants included specialists from several Russian sites, the Ministry of Defense and Rosatom officials. The U.S. sent more than 20 security specialists to discuss issues ranging from protective force training, to oversight procedures, to technology. The U.S. presentations were well received and initiated good discussions.

The countries have agreed to continue collaborating in the area of Nuclear Security Best Practices and have begun a dialogue on the topics to be discussed at the next meeting that should take place this fall.

As for third-country consultations, both countries are reviewing how best to accomplish this. We believe that it is essential for the United States and Russia to have a common understanding of what “best practices” we would jointly share with third countries. We are anticipating at least one more round of bilateral workshops before any kind of consensus could be reached in that area.

### *Security Culture*

In addition to proposing a workshop on “best practices,” the Joint Statement also called for a workshop on Nuclear Security Culture. The statement calls for “fostering disciplined, well-trained, and responsible custodians and protective forces, and fully utilized and well-maintained security systems.” The concept of “security culture” has been the topic of many international meetings, and the International Atomic Energy Agency is working to put together a paper on defining “security culture” and explaining the concept in depth. To fulfill this Bratislava mandate, the U.S. and Russia conducted a workshop in conjunction with the “best practices” workshop on September 12-13, 2005.

The workshop used experts from the Department’s cadre of nuclear security experts. The group discussed the meaning of “security culture” and presentations were given on norms, regulations and documents that influence the formation of a security culture, education and training of personnel, and topics related to the “human factors” of nuclear security.

After the workshop, both sides concluded that exploring the concept of “security culture” was a useful endeavor. We agreed to continue the dialogue under the auspices of the Joint Coordinating Committee, established under the 1999 Government-to-Government Agreement regarding Cooperation in the Area of Nuclear Material, Physical Protection, Control and Accounting (or the MPC&A Agreement), and that the progress would be reported back to the Senior Working Group. So far, the sides have agreed to a definition

of Security Culture as “the assembly of characteristics, principles, attitudes, and behavior of individuals, organizations and institutions, which serves as a means to support and enhance nuclear security” and U.S. and Russian Co-chairs agreed to develop principles and evaluation criteria relating to Security Culture by the end of 2006.

### *Research Reactors*

We have worked with Russia in the area of research reactors for many years. As mentioned earlier, in order to accentuate and expedite the important work yet to be done in this area, the Department consolidated several programs under the Global Threat Reduction Initiative in 2004. In particular, we have two related programs with Russia that became part of the Bratislava Nuclear Security initiative: the Russian Research Reactor Fuel Return (RRRFR) program and the Reduced Enrichment for Research and Test Reactors (RERTR) program. The RRRFR program is designed to repatriate Russian-origin fresh and spent nuclear fuel from research reactors located in third countries. The U.S. has an analogous program to repatriate fresh and spent US fuel from reactors in third countries. The RERTR program designs and develops LEU fuel for use in reactors originally designed for HEU fuel. The Bratislava initiative commits both sides to continue to work together to achieve the goals of HEU minimization and repatriation of fuel from third countries.

So far, a good deal of progress has been made. The experts on both sides agreed on a prioritized schedule for all remaining Russian-origin fresh fuel shipments and agreed that they would be completed in 2006, and that spent fuel would be completed by 2010. In order to meet that schedule, a joint U.S. DOE-Rosatom technical working group will operate under the Joint Coordination Committee with the objective of accelerating and coordinating preparations for irradiated nuclear fuel shipments.

We’re making real progress: 2.4 kilograms of Russian-origin fuel from a research reactor in Salaspils, Latvia was repatriated in May 2005, and 14 kilograms of Russian-origin HEU fresh fuel from the VR-1 reactor at the Czech Technical University was repatriated in September 2005. Another milestone was reached this year when the first shipment of Russian-origin HEU spent fuel from Uzbekistan was returned to Russia. And, in accordance with the schedule to return U.S.-origin spent fuel from U.S.-designed research reactors in third countries, 210 U.S.-origin spent fuel assemblies from the Netherlands and 128 U.S.-origin spent fuel assemblies from Sweden were returned to the United States in June 2005, and 46 U.S.-origin spent fuel assemblies from Greece and 22 U.S. origin spent fuel assemblies from Austria were returned to the U.S. in December 2005.

As I have stated, experts from the United States and Russia are working on development of high-density uranium fuels that will enable conversion of the remaining reactors that cannot convert with currently qualified LEU fuels. This work will continue using mechanisms to allow continued collaboration, such as contracts between U.S. National Laboratories and Russian institutes, information exchange through the International



Group of Independent Experts on Fuel Development, and delivery of LEU replacement fuel to third countries.

Milestones in this program include:

- The first Russian-designed research reactor located in a third country and supplied with Russian-origin HEU fuel, the VR-1 reactor at the Czech Technical University, was successfully converted to low enriched fuel (LEU fuel) in October 2005. This is a significant achievement and will facilitate conversion of other Russian-designed research reactors in third countries to operate on LEU fuel.
- LEU fuel was delivered to the Tajura research reactor in Libya to replace repatriated HEU fuel and support reactor conversion in summer 2006.

Again, I would like to reiterate that while work in these areas has been proceeding for several years, Bratislava has encouraged us to set more aggressive schedules and achieve Russian commitment to this important work.

#### *Nuclear Security*

As you may know, we have a longstanding record of cooperation in material protection control and accounting, or MPC&A, programs with the Russian Federation. We began these programs in collaboration with the Department of Defense in 1993 under the CTR program. It is a robust and broad program that addresses Russian civilian and military facilities containing both nuclear warheads and material with physical protection upgrades, material control and accounting upgrades, protective force equipment and training, and upgrades to nuclear transportation system. Additionally, the program has numerous national-level programs aimed at larger issues involved in nuclear security, such as developing laws and regulations, codifying standards for training and employment, developing a national-level accountancy system, as well as developing and training oversight bodies.

This is a mature program. We are committed to finish the upgrades portion of our work at Rosatom's material sites on which we have agreement by 2008 under Bratislava.

When the Presidents committed to Bratislava, we were able, for the first time, to establish a "master plan" for completing our security work with the Russian Federation. Working under the auspices of established agreements, Rosatom, the Russian Ministry of Defense, the U.S. Department of Energy and U.S. Department of Defense developed a Joint Action Plan that outlines the agreed-upon scope of work on upgrades to the security systems at nuclear sites in Russia (as well as for transportation of nuclear warheads slated for disposals). The detailed portions of this plan identify new buildings and the status of on-going cooperation for specific buildings at specific cooperation sites. The plan also includes cooperation in the areas of nuclear regulatory development, sustainability, secure transport, material protection, control and accounting expertise training, protective

force equipment and other such crosscutting issues. The Joint Action Plan for Rosatom and the Russian Ministry of Defense sites includes evaluations of joint projects, specific implementation timeframes, and detailed milestones. These plans will be augmented with detailed schedules as Rosatom and the Russian Ministry of Defense nominate new areas for cooperative work.

Because of the sensitive nature of the information that the U.S. side receives during the course of performing upgrades at Rosatom sites, U.S. and Russian experts signed a Memorandum on Procedures for the Exchange of Sensitive Information between Rosatom and the U.S. Department of Energy's (NNSA) Office of International Material Protection and Cooperation in August of 2004.

As I mentioned, we are in the process of completing some of the upgrades work at Rosatom sites and commissioned two sites last August, the Scientific Research Institute of Atomic Reactors (NIIAR) in Dimitrovgrad and the Scientific Research Institute of Instruments (NIIP) in Lytkarino. And by fall of 2006, upgrades will be completed at the Bochvar All-Russian Scientific Research Institute of Inorganic Materials (VNIINM) and the Institute of Physics and Power Engineering (IPPE).

Working with the Ministry of Defense, we have enjoyed a good relationship. We have completed significant work with the Russian Navy. In the past few years we have also worked to secure some Strategic Rocket Force sites. Perhaps the most significant breakthrough resulting from Bratislava was that the Russian Ministry of Defense, the 12<sup>th</sup> Main Directorate, offered to the U.S. Departments of Energy and Defense, a list of sites for cooperative security upgrades. The sites in question are large nuclear warhead storage sites. The U.S. has reviewed those proposed sites and has agreed to upgrade security at fifteen of the newly proposed sites. The Department of Defense, the Department of Energy and the Ministry of Defense are all working together to determine what other assistance the U.S. can provide.

In the sphere of nuclear security, both Presidents also committed in the Joint Statement to work together to amend the Convention on the Physical Protection of Nuclear Material (CPPNM). I am pleased to report that through the efforts of the U.S., the Russian Federation and other States Parties, the CPPNM was amended last July. This amendment is a significant step forward for international nuclear security. It expands the scope of the Convention to cover not only nuclear material used for peaceful purposes in domestic use, transport and storage, but also nuclear facilities used for peaceful purposes. This amendment also includes new counter-terrorism provisions requiring each State Party bound by the amendment to make sabotage of a nuclear facility used for peaceful purposes, or threats to do so in order to compel a person or State to do or refrain from doing any act, a punishable offence under its national law. We will continue to work closely with Russia and other key partners to ensure its timely ratification, and to revise international physical protection guidance to address these new obligations.

We will also continue to work with Russia in the Nuclear Suppliers Group to strengthen controls on especially dangerous nuclear technologies. As proposed by President Bush in

2004, we seek broad restrictions on transfers of enrichment or reprocessing technologies – the very technologies sought by Iran and DPRK (North Korea) to pursue nuclear weapons programs.

### Conclusion

The Bratislava Nuclear Security initiative allows us to expand and accelerate the work we have been doing in the area of nuclear security, explore some new avenues of cooperation, and begin a new era in our relationship with the Russian Federation. Bringing the issue of nuclear security to the attention of the highest levels of both the U.S. and Russian governments provides an immeasurable increase in focus to our own security.

Just this past month, members of my staff and our colleagues in other parts of the U.S. Government met with our Russian counterparts here in Washington to discuss next steps in cooperation. Secretary Bodman was briefed on our activities by the entire delegation and is fully engaged. Prior to the working meeting, Secretary Bodman and Director Kiriyenko (Rosatom) spent a considerable amount of time together discussing a number of topics, most of which highlight Bratislava.

We are moving toward the time when Russia assumes full responsibility for protecting its own warheads and material, for reducing the quantity of fissile material and the numbers of sites at which it is located, and invests in measures to prevent, respond to and mitigate nuclear or radiological incidents. This is a necessary condition of both countries' security. Thus far, progress under the Bratislava initiative indicates that Russia is willing to take on that challenge, and we are proud of our success in helping Russia prepare to do so. Of course, we recognize there is much work still to be done.

Again, Mr. Chairman, I thank you for the opportunity to highlight this important Initiative. I look forward to answering your questions.